Flash photography

Flash photography is perhaps the single most important technique used by photojournalists. It can be a photographer's best friend, but it can also be one of the most misunderstood techniques in photography. However, through familiarization with your flash unit and proper application of technique, you can use flash photography to enhance the quality of your photographs.

Electronic flash

An electronic flash is a tube containing gas that produces a brief, but brilliant, flash of light when fired.

- The surge of electricity to the flash tube causes the gas to glow.
- It produces a quality of light that is nearly the same as daylight.

An electronic flash is a lightweight and portable source of light that can be used both indoors and outdoors while delivering a measurable and repeatable quantity of light.

Goals – There are two goals when using flash.

1. To make the photo look as if one had not been used.
2. The light should closely mimic natural light.

Safety precautions

Flash units use a current electricity to create light. When using them you must consider the following:

- Stay away from water and explosive vapors. If the flash is discharged near explosive vapors, it can ignite, causing an explosion.
- Don't fire the flash directly into anyone's eyes at close range. This will cause a brief period of blindness and can cause damage to the retina, leading to partial or complete blindness.
- Inspect the unit regularly to ensure it is safe. Look for loose connections and frayed wires. If found to be unsafe do not attempt to repair any part of the unit yourself.

Photo courtesy of Defense Imagery

Parts and functions an electronic flash

Note: The next three sections of this lecture will cover information specific to the Nikon SB-800 flash, the flash unit used by students during the in residence portion at DINFOS. Similar flash units have similar information, but when using your flash, you may want to refer to its user manual.

Parts and functions

The main parts of the SB-800 flash include the power supply, flash head, hot shoe, control buttons, auto focus(AF)-assist illuminator and the light sensor.

- SB-800 power supply (red rectangle)

  1. The SB-800 flash can be powered by an external battery pack, such as the Quantam battery pack, or four AA batteries, including alkaline-manganese, lithium, nickel, NiCd rechargeable and others.

  2. Recycle time, or the amount of time it takes for the unit to reach full power after being fired, is as fast as approximately three seconds.

- Flash head (arrow directions)

  1. The SB-800 flash head tilts horizontally, locking at various angles from a negative 7 degrees to 90 degrees.

  2. The head also rotates vertically 270 degrees.

  3. The lock release button (red ellipsis) must be pressed to move the head horizontally or vertically.

  4. Usable shooting distance range is up to 66 feet.

- Hot shoe

1. The hot shoe on the flash unit connects to the accessory shoe (hot shoe) of the camera, allowing the flash and camera to "talk" to each other (two red circles).

2. To connect, ensure both the flash unit and camera are powered down, then slide the flash unit's hot shoe onto the camera's hot shoe from the rear and lock it in place moving the lock lever (red square) on the flash unit left or right (red arrows).

- The LCD panel on the back of the flash unit (top images) provides a display of various settings on the flash unit and the camera (as the camera is connected to the flash unit). These settings include: the shooting mode, ISO (sensitivity) rating, zoom, f-stop and distance scale (i.e., 3.5 – 39 feet). You will use the distance scale when setting your f-stop for a flash exposure.

- The control buttons on the back of the flash unit include the test flash button, the ready light, the mode button, multi selector and the on/off switch (red squares).

- The primary parts on the front (bottom image) include the auto focus (AF)-assist illuminator (red rectangle) and the light sensor (red circle).

  1. The AF-assist illuminator automatically turns on in low light conditions when the camera is in autofocus operation. *In this course you will operate your camera in M (manual) focus mode, so you will not be using this illuminator.*

  2. When the flash unit is in automatic flash mode, the light sensor senses the amount of light being reflected from the subject and tells the flash to stop discharging when the correct exposure has been attained. *In this course you will operate your flash unit in TTL BL mode, so you will not be using this light sensor.*

Operating controls

1. **Multi selector** (the "SEL" button) – allows the user to select various functions and values. The +/- buttons – allows you increase and decrease values of the control (as displayed on the LCD panel).

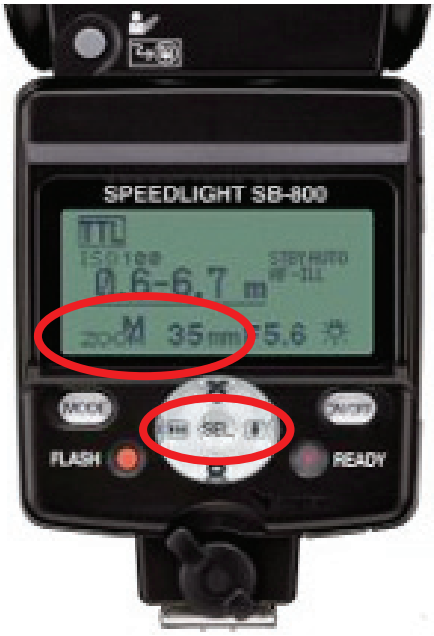
2. **ISO** (film speed/sensitivity) button – ISO on the SB-800 is set automatically to match the camera when connected to the D70 camera. [Since you will only be using ISO 200 or 400 in this course, the flash unit should reflect one of these numbers.] If the ISO does not set automatically (the default is ISO 100), then the flash is probably not seated properly. You may have to disconnect and reconnect the flash unit to the camera a few times.

3. **Distance scale** – The distance scale can be set in either feet or meters. To change the scale, refer to the camera's user manual.

4. **Synchronization** – Sync speed is the fastest shutter speed that the camera can use and properly operate with the flash. If the shutter speed is too fast, you will get a frame with half an image properly exposed and the other half solid black. The sync speed for the SB-800 flash when connected to the Nikon D70 is 1/500ths of a second. This means when using the SB-800 with the D70, the camera's shutter speed will not go above 1/500.

5. **Zoom button** – The flash unit's zoom-head adjusts automatically.

6. **Mode button** – Pressing this button will allow you to cycle through the flash's operating modes. For this course, you will only use your flash unit in the TTL|BL mode.



Modes

The three basic modes on the SB-800 flash are: M (manual), TTL|BL (through-the-lens/balanced light), and A (automatic). In this course you will operate your flash on TTL|BL mode.

TTL|BL, or **through-the-lens|balanced light**, mode is used in combination with the camera's light meter when determining when the subject and the background/foreground are correctly exposed. To shoot a TTL|BL flash photo:

1. Select the TTL|BL mode by pushing the mode button until "TTL|BL" appears in the display.

2. Select an appropriate shutter speed for the shoot (between 1/60th and 1/500th of a second – the slowest and fastest shutter speeds at which the flash will synchronize with the Nikon D-70). Recommend you use the 1/60 shutter speed for all indoor flash photos.

3. Estimate your flash-to-subject distance.

4. Set your camera's aperture (f-stop) (as seen on the flash unit's LCD panel also) so that your estimated flash-to-subject distance falls within the scale displayed on the flash unit's LCD panel. As you change your f-stop, the scale will automatically change.

In the **M (manual)** mode, the user controls how much light the flash unit will provide on the subject. For example, if the 1/1 setting is selected (represented by the fraction "1/1" on the flash unit's LCD panel), the flash will provide the full power (intensity) of the light each time you take

TTL|BL Mode.

Manual Mode.
EV is set to 1/1 (full power).

a photo until the change the setting. You will not use this mode in this course.

In the **A (automatic)** flash mode, the flash unit operates similar to when the flash is in the TTL|BL mode. You will not use this mode in this course.

Photo by U.S Navy MC1 Nathanael T. Miller

In **TTL** *mode* the background ambient light and the flash output are measured through the camera lens to ensure a correct exposure.

Photo by U.S Air Force SSgt Myles Cullen

In **manual** *mode* the flash will discharge at maximum output (full power, or "1/1").

Photo by U.S Coast Guard SN Levi Read

In **automatic** *mode* the background is dark. Only your subject will be lit up.

Basic flash steps

No matter what mode you use, the basic steps of taking a flash photo are the same.

- Select your desired shutter speed. *Recommend using 1/60 shutter speed for indoor flash photos.*
- Determine and set the flash mode you want to use. *You will use TTL|BL in the course.*
- Compose your shot in your camera.
- Estimate the flash-to-subject distance.
- Set the aperture on the camera based on the flash-to-subject distance by referencing the scale on the LCD panel display.
- Angle the flash head in the direction of the subject's nose. (When shooting vertically)
- Focus on the subject's eyes and shoot.

Photo courtesy of Defense Imagery

Photo courtesy of Defense Imagery

Photo courtesy of Defense Imagery

Techniques

There are four flash techniques: *direct, diffused, bounce* and *fill-flash*.

- ***Direct flash*** – point the flash head directly at your subject.

  1. The advantage to direct flash is that you get as much light as possible on the subject.
  2. The disadvantages to using this technique are that it produces harsh shadows and strong highlights in the skin tones and can cause your image to appear flat.
  3. Shadow placement is critical. The shadow needs to be behind the subject's head. To ensure this, rotate your camera left or right so the flash is pointing in the direction of the subject's nose.

Photo by U.S Marine Corps PFC Aaron Hostutler

Photo by U.S Army SPC Corey Grogan

Incorrect

Photo by U.S Army SPC Corey Grogan

Correct

Techniques

- ***Diffused flash*** — diffused flash is similar to direct flash in that the flash is pointing directly at the subject, however a diffuser is used to scatter the light creating a softer light.

  1. To shoot diffused flash place a diffuser or other translucent material over the flash head. This will cause your light to be scattered in all directions, creating softer shadows and providing increased detail in both shadow and highlight areas.

  2. Items, such as an *Omni Bounce device, tissue, coffee filter, cheese cloth* or anything that has a white translucent material, can be used.

  3. Be sure the material is thin enough for the flash burst to get through. A colored diffuser will produce a photo tinted with the color of the material.

U.S. Marine Corps photo by Pfc. Aaron Hostutler

Direct Flash

U.S. Marine Corps photo by Pfc. Aaron Hostutler

Diffused Flash

Techniques

- ***Bounce flash*** – This is the most desired flash technique because it most resembles natural lighting. It is similar to soft, hazy sunlight or window light.

  1. The flash is reflected off a ceiling or a wall toward the subject and produces a pleasing effect with few shadows, if any.

  2. When estimating distance, you need to include in your estimation the distance from your flash to the bounce surface (i.e., the ceiling), and then from that surface to your subject.

  3. Set your aperture (f/stop) referencing the distance scale on the LCD panel with the flash head in the horizontal position before tilting it to use as a bounce flash. (The distance scale on the LCD panel only appears when the flash head is in the horizontal position.)

Photo by U.S Navy MCSN Joshua Nistas

Photo by U.S Army SPC Matthew Millham

In **TTL|BL mode** the flash automatically adjusts light output.

Techniques

Fill flash – This technique is used to fill in shadows while shooting indoors or outdoors and backlit subjects.

1. To shoot using this technique, ensure the camera is in matrix metering mode, which is the only mode you should be using in this course.

2. Ensure the flash unit is in TTL|BL (the only mode you should be using in this course).

3. Expose for the background. Since you are using Matrix metering, to meter on the background you will need to either have you subject move out of the frame or point your camera to the left or right so as the only thing you see through the viewfinder is the background.

4. Recompose your image, focus and take the photo. The background will be properly exposed and the flash will fill in the shadows on your subject.

Note: Watch out for mirrors, chrome, glass surfaces (in general), or dry erase boards, as they will render "hot spots" on your image.

U.S Army photo by SGT Jason Braun

This image was taken by getting a proper exposure for the background and taking the photo with no flash.

U.S Army photo by SGT Jason Braun

This image was taken after the one to the left. The photographer turned the flash unit on in TTL|BL mode and took this photo without changing any settings.

Conclusion

Flash is an essential photographic tool. Once you learn to effectively use a flash, the quality of your photographs will dramatically improve.

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